Sub E2

5. (Amended) A composition as claimed in claim 3, wherein said hydroxyapatite substance before sintering is doped with stabilizing entities [provided on a substrate comprising a component] selected from the group consisting of silicon entities, aluminum entities, zirconium entities, barium entities, titanium entities, germanium entities, chromium entities, vanadium entities, niobium entities, boron entities and mixtures thereof.

C3

6. (Amended) A composition as claimed in claim 5, wherein said stabilizing entities are [released from said substrate during sintering or] added in solution to the hydroxyapatite substance before sintering.

Cancel Claims 7, 8, and 9.

Sub E3

13. (Amended) A process for stabilizing an artificial sintered composition of calcium phosphate phases having a morphology suitable for supporting bone cell activity [thereon], said process comprising [converting] doping a hydroxyapatite substance[,] with stabilizing entities and sintering; wherein sintering converts said hydroxyapatite substance into primarily alpha tricalcium phosphate [by sintering] and said [providing] stabilizing entities [which] stabilize and insolubilize the formed alpha tricalcium phosphate within the phosphate phases.

C4

14. (Amended) A process as claimed in claim 13, wherein the composition formed is a powder, [film,] coating or three-dimensional solid.

15. (Amended) A process as claimed in claim 14, wherein said stabilizing entities are [hydroxyapatite substance is applied onto a substrate comprising a component] selected from the group consisting of silicon entities, aluminum entities, zirconium entities, titanium entities, boron entities, germanium entities, chromium entities, vanadium entities, niobium entities, barium entities and mixtures thereof.

Cancel Claims 16, 17 and 18.

20. (Amended) A process [as claimed in Claim 13, wherein said silicon entities are tetrapropyl orthosilicate] for stabilizing an artificial sintered composition of calcium phosphate phases having a morphology suitable for consistently supporting bone cell activity, said process comprising converting a hydroxyapatite substance into primarily alpha tricalcium phosphate by sintering, wherein tetrapropyl orthosilicate is added in solution to the hydroxyapatite substance before sintering which stabilizes and insolubilizes the formed alpha tricalcium phosphate within the phosphate phases.

24. (Amended) A sintered artificial microporous polycrystalline structure for supporting bone cell activity, said structure comprising sintered stabilized calcium phosphate phases having a globular surface morphology of loosely interconnected rounded granules with interconnected micropores in said structure, wherein said stabilized calcium phosphate phases are developed by the conversion of a hydroxyapatite substance doped with added stabilizing entities at sintering temperatures into insolubilized and stabilized tricalcium phosphate.

25. (Amended) A polycrystalline structure of claim 24, wherein said structure has said globular surface morphology of Figure [10] 14.

35. (Amended) A method for the culturing of functional bone cells, said method comprising;

- applying a suspension of bone cells in physiological media at a suitable physiological temperature to an artificial sintered composition of claim 1 [film of stabilized calcium phosphate phases on a substrate comprising stabilized and insolubilized alpha tricalcium phosphate complexes].

Cancel Claim 36.